Tobacco use among American adolescents: Geographic and demographic variations.

By: Wang, Min Qi, Fitzhugh, Eugene C., Green, L.; Eddy, James M., Westerfield, R.C.

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Abstract:

A previous national study indicated that the South dominated other regions of the United States in tobacco use. Using the results of the Teenage Attitudes and Practices Survey conducted by the National Center for Health Statistics, we examined the geographic and demographic differences of tobacco use among US adolescents. The sample consisted of teenagers in grades 7 through 12 nationwide (N = 6,599). Data were collected through telephone interviewing. The variables included demographics and measures of smoking or use of smokeless tobacco (chewing Tobacco/snuff). Results indicated that the overall prevalence rate for smokeless tobacco use was 4.44%, but in the South it was 6.38%. The overall smoking prevalence rate was 13.31%, with no substantial difference among regions. Demographic variables such as sex, ethnicity, education, and poverty levels were also related to tobacco use prevalence. These geographic and demographic variations in tobacco use help target specific regions and populations in greatest need of intervention programs.

Article:

Previous national surveys have documented the major demographic factors associated with tobacco use.(n4, n4) In 1985, the Office on Smoking and Health added a brief series of questions on current tobacco use practices to the Current Population Survey (CPS).(n5, n6) Owing to its large national sample, the CPS was one of a few surveys that allowed researchers to estimate tobacco prevalence by geographic location. The analysis clearly showed that the South dominated other regions of the country in both cigarette use and use of other tobacco products among men aged 20 or older.(n7) It was not known whether the dominating tobacco use for the southern adults would also be reflected in the southern adolescent population. Though a few national studies collected data on adolescent health behavior, no study examined the geographic differences in tobacco use prevalence among adolescents. Statistics have shown that despite exposure to prevention programs and knowledge of its adverse effects, many adolescents continue to be regular smokers.(n8) Cigarettes are still the number one drug used by adolescents.(n9) Each day, more than 3,000 teenagers in the US begin smoking.(n10)

In 1989, the National Center for Health Statistics (NCHS) conducted the national Teenage Attitudes and Practices Survey (TAPS) for adolescents aged 12 to 18. Information obtained from this survey included measures of smoking prevalence, geographic and demographic information, and other smoking predictors.(n11) The data were made available for public use in June 1992 by the National Center for Health Statistics. The purpose of our analysis was to use the TAPS to provide estimates of the prevalence of use of tobacco products (cigarettes, chewing tobacco, and snuff) by geographic location and demographics.

METHODS

Subjects and Data Collection

The TAPS sample contained 12,097 adolescents between the ages of 12 and 18 who resided in households interviewed for the National Health Interview Survey (NHIS). Of the total sample, 9,965 completed the interview (approximately an 82% response rate). For the purpose of this paper, only teenage students in grades 7 through 12 were included (N = 6,599) in the data analysis.

The TAPS used computer-assisted telephone interviewing for data collection. For smoking classification purposes, respondents were asked if they had ever smoked a cigarette, and if they had smoked at least 100 cigarettes in the past. Respondents were also asked the following questions: "Have you ever tried using chewing tobacco or snuff?" "Did you ever consider yourself a regular user of chewing tobacco or snuff?" "On how many of the last 30 days did you use chewing tobacco or snuff?" The responses were used to categorize the chewing tobacco/snuff users. In addition, common demographic data were collected.

Data Analysis

Data were examined through the use of frequencies and cross-tabulations. The smoking dependent variable was dichotomized as current regular smoker versus never smoked. A frequent difficulty in evaluating smoking prevalence across studies is the definition of smoking behavior. This study adopted the conventional approach by defining smokers as individuals who reported currently smoking and who had smoked at least 100 cigarettes in their lifetime. Former smokers and individuals with an unknown smoking status were excluded (1.45% of the total sample for former smoking and 0.59% for the unknown smoking status). Regular use of smokeless tobacco was defined as using chewing tobacco/snuff at least 1 day in the past 30 days. Other variables recorded for analysis included poverty, ethnicity, and grade. Poverty status was dichotomized as above or below poverty index. Ethnicity was dichotomized as white and black. Remaining ethnic categories when combined counted for only a small percentage of the total sample (3.7%) and were not included in the data analysis. Grade was categorized as junior high (grades 7 through 9) or senior high (grades 10 through 12).

RESULTS

For the total sample, 13.31 % of adolescents were regular smokers and approximately 4.44% of adolescents were regular chewing tobacco/snuff users (Table 1). The Northeast and Midwest reported a higher percentage of regular smokers than the South and the West. The South had the highest prevalence rate of regular use of chewing tobacco/snuff, while the other regions had comparable numbers of regular users of these products. The prevalence of regular smoking was higher for boys than for girls in all regions except the West, where there were more female than male smokers (12.38% vs 11.84%) (Table 2). Regular use of chewing tobacco/snuff was substantially greater among boys throughout all regions. The rate of regular use of chewing tobacco/snuff was higher among southern boys (12.45%) than their counterparts in any other region. Among girls throughout all four regions, the prevalence rate for regular use of chewing tobacco/snuff was less than 1%, with the South having the highest rate of 0.37%.

As to ethnicity, the West reported the lowest prevalence of smoking among whites (12.80%) and the South reported the lowest for blacks (2.60%) (Table 3). The prevalence rate for regular use of chewing tobacco/snuff by whites was markedly higher in the South (8.61 %) than any other region. And when compared to their white counterparts, black users of chewing tobacco/snuff had lower prevalence rates in all regions.

By grade, senior high adolescents had higher smoking prevalence rates than their junior high counterparts for all regions. The same pattern was found for regular chewing tobacco/snuff users. However, regular use of chewing tobacco/snuff among junior high students in the South more than-doubled that of their counterparts in any region, ranking even higher than senior high regular users in any region (Table 4).

The above-poverty level was associated with a higher smoking prevalence in the South, while the below-poverty level was associated with higher smoking prevalence in other regions (Table 5). The below-poverty level was associated with greater use of chewing tobacco/snuff in the Midwest, whereas the above-poverty level was associated with greater use of these products in other regions. The South had the highest regional levels of chewing tobacco/snuff use regardless of economic status.

DISCUSSION

The TAPS data indicated a current regular smoking prevalence rate of 13.13% for adolescents in grades 7 through 12 nationwide. Geographically, the South:(12.45%) and the West (12.13%) had lower smoking prevalence rates than the Northeast (14.74%) and the Midwest (14.19%). Among male smokers, the Midwest ranked the highest (16.34%) and the West ranked the lowest (11.84%). For female smokers, the Northeast was the highest (14.19%) and the South was the lowest (10.95%). These findings were not consistent with the adult smoking prevalence in the US.(n7) For example, for both male and female adult smokers, the South ranked the highest in smoking prevalence in the US. Therefore, it would be expected that there were more adolescent smokers in the South since adult smoking habits often begin during adolescence. This assumption was not true, however. For the national adolescent data, the female adolescents in the South ranked the lowest in cigarette smoking, while the male adolescents ranked next to the lowest in the country (next to the West). This finding should lead health professionals to investigate the reasons why there was a greater increase of smoking prevalence from adolescence to adulthood in the South than other regions.

We found the nation's prevalence rate for regular use of chewing tobacco/snuff to be 4.44%. According to the US Department of Health and Human Services, the use of chewing tobacco/snuff has increased dramatically in recent years among teenage boys.(n12) Our data demonstrated that, if analyzed by sex, regular use prevalence rates among boys reached 9.14%, but only 0.18% among girls. Geographically, almost twice as many male adolescents from the South used chewing tobacco/snuff as did their counterparts in other regions. This finding was consistent with previous national data,7 which also showed a greater percentage of adult users of chewing tobacco/snuff in the South. Few studies investigated the reasons why sex and geographic area have an impact on tobacco use prevalence rate. It is speculated that because the major US tobacco manufacturers are located in the South, more adolescents in this region may have family members who work for these companies or who are otherwise associated with tobacco production. Therefore, chewing tobacco and using snuff may be considered socially more acceptable in the South than in other regions.(n13) However, few empirical studies were found to support this tentative explanation, and further study is necessary.

Other demographic factors also deserve attention. There was a substantially higher prevalence of smoking and using chewing tobacco/snuff among whites than among blacks in all regions of the country. This finding was expected, since ethnic differences have been reported in other studies on adolescent smoking, (n14 n15) as well as studies on adult smoking. (n16, n17) However, few published studies have examined differences in chewing tobacco/snuff use among ethnic groups, thus making comparisons of our data with those from previous literature impossible. Considering poverty level, there were mixed findings in this study. Adolescents from the above-poverty level families had a greater smoking prevalence in the South, while in other regions the pattern was reversed. With the exception of the South, our data agreed with previous national data on adult smoking which suggested that being below the poverty-level was associated with greater smoking prevalence than being above the poverty level (45.2% vs 32.8%).(n16)

In contrast to the smoking results, adolescents from above-poverty families tended to have increased rates of smokeless tobacco use than below poverty families in all regions except the Midwest. Regular smokers increased from 10.68% to 17.67% between grades 7 to 9 and grades 10 to 12, and the regular users of smokeless tobacco increased from 3.;78% to 6.09% between grades 7 to 9 and grades 10 to 12, across all regions. These findings were expected, since the previous national study reported a similar trend (de, as adolescents grow older there is an associated increase of tobacco use).(n18)

In summary, adolescent regular smokers were more likely to be white, male, and older. Regular users of chewing tobacco/snuff were more likely to be white, male, and older. Higher rates of smokeless tobacco use were noted among adolescents in the South than those in other regions. If the nation's health goals for the year 2000 are to be achieved,(n12) prevention of tobacco use by adolescents should focus on these groups, with specific and intensive efforts given to certain topics in certain regions, such as the use of chewing tobacco/snuff in the South.

Table 1. Tobacco Use Prevalence by Geographic Location

	Smoking (%)	*Chewing Tobacco/ Snuff (%)*
South (n = 2,219)	12.45	6.38
Northeast (n = 1,282)	14.74	3.41
Midwest (n = 1,826)	14.19	3.52
West (n = 1, 272)	12.13	3.38

Total: n = 6,599

Table 2. Tobacco Use Prevalence by Geographic Location and Sex

	Smoking (%)	*Chewing Tobacco / Snuff (%)*
South		
Male (n = 1,149)	13.86	12.45
Female (n = 1,070)	10.95	0.37
Northeast		
Male (n = 640)	15.30	7.03
Female (n = 642)	14.19	0.16
Midwest		
Male (n = 896)	16.34	7.59
Female (n = 930)	12.13	0.11
West		
Male (n = 610)	11.84	7.38
Female (n = 662)	12.38	0.00

Totals: male, n = 3,295; female, n = 3,304

Table 3. Tobacco Use Prevalence by Geographic Location and Race

	Smoking (%)	*Chewing Tobacco / Snuff (%)*
South		
White (n = 1,638)	16.02	8.61
Black (n = 581)	2.60	1.03
Northeast		
White (n = 1,072)	16.60	3.99
Black (n = 179)	3.41	1.12
Midwest		
White (n = 1,581)	15.92	4.36
Black (n = 245)	3.29	0.00
West		
White (n = 1,182)	12.80	3.81
Black (n = 89)	3.37	0.00

Totals: white, n = 5,473; black, n = 1,094

Table 4. Toabacco Use Prevalence by Geographic Location and Grade

	Smoking (%)	*Chewing Tobacco / Snuff (%)*
South		
Grade 7-9 (n = 1,413)	10.08	6.09
Grade 10-12 (n = 806)	16.60	7.57
Northeast		
Grade 7-9 (n = 755)	11.56	2.66
Grade 10-12 (n = 493)	19.87	5.07
Midwest		
Grade 7-9 (n = 1,113)	11.22	2.70
Grade 10-12 (n = 713)	18.87	5.47
West		
Grade 7-9 (n = 789)	10.12	2.28
Grade 10-12 (n = 483)	15.45	5.59

Totals: grade 7-9, n = 4,070; grade 10-12, n = 2,495

Table 5. Tobacco Use Prevalence by Geographic Location and Economic Status

	Smoking (%)	*Chewing Tobacco / Snuff (%)*
South		
< Poverty (n = 289)	10.25	4.50
> Poverty (n = 1,760)	13.11	7.33
Northeast		
< Poverty (n = 140)	16.91	2.14
> Poverty (n = 1,090)	14.60	3.85
Midwest		
< Poverty (n = 181)	15.21	3.87
> Poverty (n = 1,542)	14.16	3.57
West		
< Poverty (n = 151)	16.44	2.65
> Poverty (n = 1,054)	11.33	3.80

Totals: < Poverty, n = 761; > Poverty, n = 5,446

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